

PANACEA

Autonomous PNT Performance
and Vulnerability Test Suite



Simultaneously
communicates with and
controls up to 32 Units
Under Test (UUT)

PANACEA pairs with Talen-X's
BroadSim Simulator / Jammer.



WHAT IS PANACEA?

PANACEA is an autonomous GNSS performance and threat environment simulator system for multi-receiver position, velocity and timing (PVT) performance and vulnerability testing.

PANACEA is designed for up to 32 GNSS receivers to be tested, simultaneously. PANACEA paired with BroadSim can be configured to simulate multiple constellations concurrently. Encrypted GPS signals are also available.

Along with completely simulated environments, PANACEA can be used to produce a time sync'd Live Sky / Simulated test environment.

During Testing, PANACEA manages all receiver communication and then standardizes the output for east post test analysis.

PANACEA currently supports 100+ receivers and is compatible with receiver brands like ITT, Garmin, GPS Source, L3, Magellan, NovAtel, Rockwell Collins, Trimble, uBlox and more.



BUILDER

Define scenarios to simulate jamming patterns, motions, power loss, delays and more. The Builder makes creating custom performance and vulnerability scenarios a breeze.

RUNNER

Simultaneously manages up to 32 UUT's. The Runner shows real-time UUT information and converts receiver data into files for post-processing.



SCENARIO CREATION PARAMETERS

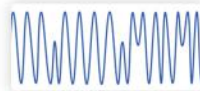
INTERFERENCE WAVEFORMS

Using our robust BroadSim platform powered by Skydel SDX, easily create custom interference waveforms from a variety of modulations, power levels, J/S levels, and frequencies. Thanks to BroadSim's software defined architecture, you can generate unlimited independent interference signals.

FREQUENCY - All GNSS Bands

POWER - Output up to 0dBm and up to 120 J/S

WAVEFORMS - CW, BPSK, Chirp, AWGN, BOC, + more.



CONSTELLATIONS

Import by downloading from the internet, importing a YUMA Almanac, a RINEX Almanac, a RINEX ephemeris or a uBlox constellation.

GPS OPEN CODES: L1 C/A, L1C, L1P, L2P, L2C, L5

BEIDOU: B1, B2

GPS ENCRYPTED CODES: L1Y, L2Y, L1M, L2M

SBAS: L1

GLONASS: G1, G2 **GALILEO**: E1, E5a, E5b

JAMMING

THREATS

Develop advanced jamming and spoofing scenarios.

RECEIVE + TRANSMIT ANTENNA - Motion Profile, LLA Position, NED Offset

SET-UP - Control when the threat turns on and what the relative power is

DELAY - Add delays to the threat (ns)

SV POWER

Control the relative power of all of the satellites in the constellation independently or as a whole. The power level of the SV's can be set to control power levels at various times throughout a scenario.

SV DELAYS

Set a time delay of all the satellites in the constellation independently or as a whole. The delay of the SV's can be set to a specific and varied to any positive or negative value (nanoseconds).

DATA OVERRIDE SETS

Note when important events happen in your scenario. PANACEA will create markers on the plots in Panorama for easier analysis.

DATA OVERRIDE SETS

Quickly create custom data sets that can be controlled independently based on SVs, time, and navigation parameters.

MOTIONS

Choose from a group of standard motions and fully customize their profiles to meet the scenario needs. Supports high dynamics and ballistic motion profiles.

CONSTANT VELOCITY

- Vertical / Horizontal Speed - Heading

RACE TRACK

- Speed - Heading - Turn Direction
- # Laps - Turn Radius - Leg Lengths

BALLISTIC

- Speed - Heading - Initial Time
- Launch Acceleration - Max Speed
- Altitude Change - Lift Parameter

CUSTOM - Time - PosN - PosE

- PosD - VeIN - VeE - VeID

IMPORT - U MT file or a GIANT route file

EVENT GROUPS

Add events to your scenario to control every aspect from power cycling the receiver, to initializing position and time.

- Cold / Warm / Hot Start, Key Rx, Init Time, Init Pos, Live Sky On/Off, Power Cycle and more.

LLA POSITION

Define custom locations by latitude, longitude and HAE Altitude.

NED OFFSETS

Define offsets by meters, and let PANACEA do conversions for you.

START TIMES

Create any start time you want by MM/DD/YYYY, HH:MM:SS. Or choose to live sky time sync.